

A Message From the New VLAP Coordinator!

Hello! My name is Andrea Green and I am thrilled to be the new VLAP Coordinator. I wanted to take a few paragraphs to introduce myself to you...

I grew up in Hanover, New Hampshire, and spent many enjoyable summers at Lake Sunapee. For my undergraduate education, I attended the University of North Carolina at Chapel Hill and received a Bachelor of Science Degree in Environmental Science in December of 1994. Between my undergraduate and graduate schooling, I worked as an intern with the Lake Sunapee Protective Association (LSPA). This is when I first learned how to collect tributary and lake samples and run them in the lab for all of the various parameters tested in the VLAP program. Teriko MacConnell, formerly of the LSPA, was my supervisor

who really got me interested and excited about lake water quality issues and the VLAP program.

I went to graduate school at Duke University in Durham, North Carolina, and received a Master of Environmental Management Degree in Water Resources in May of 1998. For my master's project, I used a mathematical watershed nutrient loading model to conduct a trophic state modeling of Lake Sunapee in response to a projected build-out analysis within the watershed.

In the Fall of 1998, I moved to Worcester, Massachusetts, to work as a *Water Resource Scientist* with the BSC Group, Inc., a New-England based environmental engineering and consulting firm. As a *Water Resource Scientist*, I actually worked as a *Wetland Scientist*, *Environmental Inspector*, and *Watershed/Water Quality Scientist*. In brief, as a *Wetland Scientist*, I identified and delineated wetland boundaries and prepared wetlands permit applications. As an *Environmental Inspector*, I inspected active construction sites for sediment and erosion control problems, and, when necessary, I recommended Best Management Practices (BMPs) to minimize the production of

non-point source pollution. And finally, as a *Watershed/Water Quality Scientist* (which was by far my favorite role), I assisted with lake vegetation surveys, water quality and nutrient loading studies, and Eurasian watermilfoil management studies. My favorite and most interesting projects at BSC involved stocking the aquatic weevil (*Euhrychiopsis lecontei*) which primarily feeds on Eurasian watermilfoil, in many Eurasian milfoil infested lakes in the Berkshires of western MA and CT.

Last fall, while conducting research using the DES website, I saw the job posting for the VLAP Coordinator position and nearly fell off my chair! I immediately submitted an application and began bugging Jody about how he should hire me. In the interview, Jody asked me why I wanted to be the VLAP Coordinator and I replied that after attempting to snorkel through many Eurasian watermilfoil infested lakes in MA and CT, and after refusing to swim in the muddy, turbid reservoirs of North Carolina (which I was told were filled with snakes and biting fish), I have come to realize that New Hampshire has some of the cleanest and most beautiful lakes in the country and I want to work with the VLAP program to help keep them that way.

Table of Contents

Subject	Page #
Connor's Corner	2
Canada Geese	3
Mercury in Fish	4
NPS Program	5
NEC-NALMS Update	5
Volunteers' Views	6
Manchester Ponds	7
Franklin Pierce College Lab	8
FAQs: Algae	9

Connor's Corner



Jody Connor
Limnology Center Director

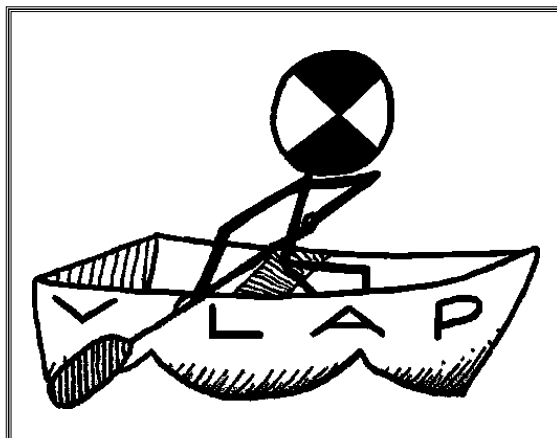
While we are getting all the equipment ready for another sampling season, I hope all you seasoned and rookie lake monitors are getting in shape for another year of monitoring. We expect a great deal of runoff this spring and heavy loads of phosphorus to our lakes. We will probably see a significant diatom increase from April through June, so don't be surprised if the lakes are a little turbid this spring.

We also have some good news for all monitors. We have finally hired a VLAP coordinator to take over Stephanie Bowser's position. You will all get to know Andrea Green during the next few months. I expect that Andrea will bring in some fresh ideas to the program, and hope that we can continue to improve with time. As always, if you have any ideas, please let Andrea or me know; the suggestion box is always open.

We have several VLAP Diagnostic Studies that are in process and one planned for this year. The Baboosic Lake study report is currently receiving in-house review while the Partridge Lake study is in the final sampling phase. Biologists will soon begin work on Rust Pond in Wolfeboro to pinpoint non-point sources of pollution to the pond and recommend a Best Management Program to reduce these sources. If an EPA funding source becomes available, we will be initiating watershed BMPs at French Pond, Henniker and Baboosic Lake, Amherst. French Pond may also receive funding for lake restoration.

Please remember that we are continuing the mercury in fish program and we encourage volunteers from the association to bring in edible fish to the Limnology Center for processing. Also, don't forget to let us know if you observe anything that is out of the ordinary at your lake. It is important to find sources of pollutants, exotic species and to enforce environmental regulations before it is too late.

Andrea is looking forward to meeting you all and Sara, Alicia and I are looking forward to working with you to help protect and monitor the health of our lakes. Don't forget to call now to reserve your sampling dates and if you need me to appear at your weekend association meeting, I still have a few dates left. Be careful out there and always have a good time!! ♦



Wildlife Notes

The Canada Goose: a Beautiful Pest

by Alicia Carlson, NHDES

We all know their distinct honking; we hear it every year to note the beginning of spring and fall. I speak, of course, of the Canada goose (*Branta canadensis*). The Canada goose has many subspecies that range in size from a 3-pound cackling goose to the 20-pound giant Canada goose. The latter's wingspread can reach up to 6.5 feet.

The Canada goose had a dwindling population in the early 1900s, but thanks in part to the Migratory Bird Treaty Act of 1918 and the Migratory Bird Conservation Act of 1929 that is not true today. The 1918 Act prohibited the hunting, possessing, purchasing, and exporting of any migratory birds, as well as any part of the bird or the eggs. The 1929 Act authorized the funding and maintenance of wild migratory bird refuges. Because of this protection, the Canada goose population is now approaching 5 million.

Many of the lakes in New Hampshire have become inundated with the Canada goose in recent years. Loon



Lake in Plymouth had counts up to 20 geese on its 110 acres this past summer. Many lake residents from around the state have complained about these nuisance birds.

So how can we keep them from overtaking our waterbodies without violating the Acts of 1918 and 1929? Here are some suggestions:

- **DO NOT FEED THE GEESE!** The Canada goose is more likely to stay in the area if there is easy access to a food source. And, like most waterfowl, geese have short digestive tracts that allow them to defecate several times per day in the general area of their source of food. This can lead to messy yards and a possible health hazard.
- Plant a shoreline buffer of plants that are at the goose's eye level. The goose has become accustomed to short grasses for food. It has been

documented time after time that geese prefer an open shoreline so they can easily spot predators. Not only will planting shoreline vegetation keep geese from inundating your lakes and lawns, but also it will help keep excess

phosphorus from entering the lake!

- Place helium-filled balloons or flags and streamers along your shoreline. The object must be able to move in the wind and be above the heads of the geese. Geese and other waterfowl are wary of moving objects above their heads. Be sure to move the objects every few days so the geese do not become used to their presence.
- For drastic cases, specially trained dogs have commonly been used to eradicate birds from lakes and shorefront property. The most used dog breed is the Border collie, since they do not attack the birds and are not afraid of their aggressive behaviors. For more information, refer to the following websites: www.seclusival.com/goosepage.htm, and www.goosedog.com. ♦

Keep in touch!

In an effort to stay in touch with our volunteers during the off-season months, we are asking that you provide us with your year-round addresses. This will make sending information, like the annual reports and this newsletter, to each of you an easier task. We want to keep you all informed about the



goings-on of the program!

Also, if you have an e-mail address, feel free to send that along as well. You can contact Andrea Green, the VLAP Coordinator, via e-mail at vlap@des.state.nh.us, via phone at (603) 271-2658, or via the postal service at 6 Hazen Drive, Concord, NH 03302.

Biology Section Updates

Is it Safe to Eat the Fish From My Lake?

By Robert Estabrook, Chief
Aquatic Biologist, NHDES

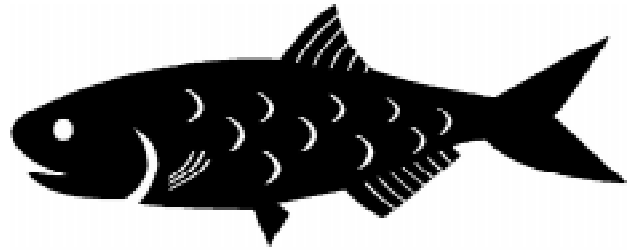
Fish are a good source of protein that is low in saturated fat and cholesterol. They can and should be a part of a healthy diet as long as they are consumed in moderation. New Hampshire, like 40 other states, has a fish consumption advisory because of mercury. The advisory recommends that women of child-bearing age and young children should eat no more than one meal of freshwater fish per month while the rest of the population eat no more than four meals of fish per month. Saltwater fish also contain mercury. The sensitive population (women of child-bearing age and young children) should avoid shark, swordfish, king mackerel and tilefish, limit the consumption of a certain kind of canned tuna known as "white tuna" to one meal per week, and limit consumption of other commercially available fish to two meals per week. For other persons, limit the consumption of the four above named fish to two meals per month, with no limit for other fish provided they are consumed as part of a balanced diet.

Mercury enters
lakes primarily
t h r o u g h
a t m o s p h e r i c
d e p o s i t i o n .

Thus, remote ponds can have similar levels of mercury as urban ponds. The mercury concentrates as it moves up the food chain such that the top predatory fish and fish-eating birds such as loons have the highest concentrations. Because the mercury is concentrated in the meat or fillet of the fish, no cooking or fish preparation process can be used to reduce the mercury concentration. In New Hampshire, we find the highest mercury concentrations in predatory warmwater fish such as large and smallmouth bass, pickerel, and white and yellow perch. The various trout species tend to have lower levels of mercury. In addition, older fish have higher mercury concentrations than younger fish. A good rule of thumb is to avoid eating trophy-sized warmwater fish.

What is being done about the mercury problem?

Evidence exists that the amount



of mercury deposition is declining as a result of the Clean Air Act. In addition, New Hampshire is at the forefront in proposing and supporting legislation to reduce the amount of mercury in the waste stream and to reduce the allowable mercury emissions from power plants, trash incinerators and other fossil fuel burners. We also continue to analyze fish from New Hampshire waters for mercury concentrations. You may submit a freshly caught fish to the Limnology Center for analysis by the Public Health Laboratory. We are interested in species of fish that people consume and in sizes that people typically catch. We do not want the trophy-sized fish.

For more information on mercury, log onto the DES website at www.des.state.nh.us and select mercury under 'hot topics'. Subsequently selecting 'fish advisory' will link you to the Public Health website for more information on the consumption advisory. Please be assured that mercury poses no health hazard from swimming in New Hampshire's waters. If you brought a fish into the Limnology Center in the past and would like to know the results of our analyses, please contact Jody Connor or Andrea Green. ♦

COORDINATOR'S MESSAGE, cont'd from page 1

Jody, Amy Smagula, and Natalie Landry must have seen how excited I was about the opportunity to be the VLAP Coordinator, because here I am! After my first week of being here, I have learned a great deal about the program and the volunteers and each day I keep getting more and more excited about the program. I wanted to extend my thanks to everyone here in the Limnology Center, especially Alicia Carlson, for taking the time to show me the ropes. I am looking forward to meeting you all and working with you this summer! Please feel free to give me a call to let me know when you want to schedule your annual lake visit, or if you just want to say "hello" (603-271-2658). ♦

Biology Section Updates Another VLAP Success Story

by Steve Couture, DES NPS Program

Have you ever wondered as a volunteer what more can be done to improve the quality of your lake? Some lake associations have taken on restoration efforts. Case in point, Great Pond in Kingston, NH. This magnificent pond has been the fortunate recipient of local VLAP efforts since 1991, but that is only the beginning of this VLAP success story....

Once local residents initiated sampling in 1991, it became quite apparent to the volunteers and NHDES that Great Pond had several sources of phosphorus that were leading the waterbody down an accelerated path of cultural eutrophication. This concern and supporting VLAP data resulted in NHDES successfully applying for and receiving funding for an intensive 18 month Diagnostic Feasibility Study (DFS). The DFS relied on the VLAP monitors to help collect the data, which

culminated in a final report that identified phosphorus sources and provided several phosphorus reduction strategies.

Once the report was presented to the Town of Kingston in the fall of 1999, the VLAP monitors and the Conservation Commission moved swiftly to implement the recommendations of the DFS. This began by working with the NHDES Biology Section to determine which areas they should address, and how to obtain funding to supplement the Town's contribution. The Town identified outreach and education, as well as installing Best Management Practices (BMPs) at Ball Road as its primary objectives. Thanks to the persistence of Diane Eadie, Conservation Commission Chairperson, Ken Briggs, Town of Kingston Consulting Engineer, and technical assistance from Sue Hoey of the Natural Resources Conservation Service, the Conservation Commission submitted a grant application to NHDES under its Nonpoint Source Local Initiative Grant Program.



Ball Rd., Kingston, during construction.

Due to the local support and the water quality data that documented Great Pond's areas of concern, the Conservation Commission was awarded the grant in January 2000. To date the Conservation Commission has implemented the following components of its grant proposal:

- Installation of BMPs at Ball Road
The grant paid for the materials, and the Kingston Department of Public Works installed the BMPs.
- DFS presentation at the Ridgewood Neighborhood Association annual meeting.

The Conservation

cont'd page 6

Have You Joined NEC NALMS Yet?

NEC NALMS is the acronym for the New England Chapter of the North American Lake Management Society. The purpose of the Chapter is to promote further understanding of lakes and other waterbodies, and their watersheds; the ecosystem of which they are a part; and their protection, restoration, and management.

Each year NEC NALMS sponsors a conference for lake managers and volunteer monitors to meet and discuss various issues associated with lake ecology. The conference is hosted by

each New England state in turn, and this year it is being held in Montpelier, Vermont from June 1 through June 2.

On Friday June 1, several workshops and field trips are offered. Opportunities include a field trip to Lake Parker to learn about watershed surveying and lake restoration and an aquatic plant identification workshop at Vermont's water quality labs.

Several talks are planned for the Saturday lecture sessions,



including presentations on volunteer weed watching, lake water quality and lake trends. If you would like more information about becoming a NEC NALMS member, please contact Amy Smagula at 603-271-2248 or asmagula@des.state.nh.us. You can also visit the NEC NALMS website at www.nalms.org/necnalms. ♦

Volunteers' Views

The monitors at Mascoma Lake, Enfield discovered Eurasian Milfoil (*Myriophyllum spicatum*) in the southeastern section along the shoreline in 1999. During that year, a canoe was used to find the plants, which proved to be time-consuming. So, the lake association purchased a second-hand pontoon boat. A hole cut in the bottom where a glass-bottomed box was inserted. The "USS Milfoil" was slightly useful in waters of 3 feet or less with the appropriate sunlight, but upon entering waters greater than 4 feet deep, algae interfered with the bottom viewing. An infrared camera system was used that helped see below 3 feet, but still did not prove entirely effective. This just proves how resourceful our volunteers can be. Keep trying!

Submitted by Bill Martin, Mascoma Lake monitor

In a related story, the monitors at Lake Massasecum, Bradford developed a weed-cutting pontoon boat, *The Milfoiler*. This was brought on by an unsuccessful attempt at chemical treatment followed by an effort to rake the plants back. The 2000 summer was the first trial run of the harvester, so we will have to wait to see how the project fared.



The Milfoiler, Lake Massasecum, Bradford. July 2000.

Spofford Lake, Spofford was having a problem with the aquatic plant pondweed (*Potamogeton perfoliatus*) after it first entered the lake 15 years ago. The common plant spread throughout the 700-acre lake's shallow areas until 1999. In 2000, the plant was hardly found at any place in the lake! The residents are pleased, but baffled. Let's keep an eye out for the plant this coming season. Submitted by Fred Szmit, president of the Spofford Lake Association

A VLAP monitor found a mysterious hole in the ice at Frost Pond, Dublin this January. A researcher from the U.S. Army Cold Regions Research and Engineering Laboratory in Hanover visited the pond to pinpoint the source of the hole. It is believed a meteorite created the smooth-edged hole, although no evidence has yet been discovered to prove this theory. Adapted from the Concord Monitor

VLAP SUCCESS, cont'd from page 5

Commission promoted the event and NHDES Biology Section staff educated the neighborhood association members about the threats to Great Pond.

- Great Pond Watershed Workshop
- Over 30 Residents from both towns in the Great Pond Watershed, Danville and Kingston, attended this workshop.

That's just for starters! In 2001, the Kingston Conservation Commission will send an educational packet to over 170 landowners who reside within



Ball Rd., Kingston, after BMP installation.

the 250 foot shoreland protection area of Great Pond, install an informational kiosk at the pond's public access site, hold a native vegetation/erosion workshop, and implement the Interactive Lake Ecology curriculum at a YMCA camp

located on the shores of Great Pond.

The Nonpoint Source Local Initiative Grant Program and other funding sources are available to help your NHVLAP lake or pond become a success story as well. So, if you would like assistance in developing a grant proposal, please contact Steve Couture at 271-8801 or scouture@des.state.nh.us. ♦

The Manchester Urban Ponds Restoration Program

by Art Grindle, MUPRP Coordinator

The Manchester Urban Ponds Restoration Program (UPRP) has been established to assess the health of seven of Manchester's urban ponds. These are Crystal Lake, Dorrs Pond, Maxwell Pond, McQuesten Pond, Nutts Pond, Pine Island Pond, and Stevens Pond. Steps will then be taken to restore these ponds, to the greatest extent possible, to a cleaner, healthier condition. Historic uses of these ponds include swimming, fishing and boating, but recently these activities, for the most part, have become impossible due to the poor water quality of the ponds. One of the stated objectives of the Restoration Program is to restore the ponds to their historic uses within five years of the Program's inception.

The UPRP is part of a greater environmental effort underway in Manchester. As part of a solution to remedy Manchester's combined sewer overflows, six Supplemental Environmental Projects were conceived, including the Urban Ponds Restoration project. The UPRP is overseen by the Manchester Conservation Commission. The five other projects include: Environmental Education Curriculum Development, Environmental Health Risk to Children, Stormwater Control, Streambank Stabilization, and Wetlands/Land Preservation. These projects will increase awareness and improve environmental conditions in the city.

Over the past year, the UPRP has gathered baseline water quality data, and identified threats to the future of Manchester's urban ponds. Some of these



Nutts Pond, Manchester. Clean Up Day 2000

ponds had never been sampled before. When compared with historic data that exists, the water quality of Manchester's urban ponds has not changed drastically over the last 20 years. However, when compared with a "typical" New Hampshire lake, the differences are alarming. Urban impacts such as impervious surface runoff, and inadequate shoreline buffering, have raised parameters such as conductivity and chlorophyll a concentration by as much as 1300% and 420% respectively, in some ponds. Using NH VLAP protocols, volunteers collected

water samples at all seven ponds to obtain this valuable information.

One of the goals of the program's first year was to assess and summarize the situation at each pond and recommend possible actions to improve these situations. With the help of NH VLAP, this goal was achieved, and things are looking up for Manchester's urban ponds. ♦

.....
 • The 2001 VLAP Refresher Workshop has been set for
 • Saturday, May 19. If you have not yet received
 • information about the workshop and would like to
 • attend, please contact Andrea Green at (603) 271-
 • 2658.
 •

• We look forward to seeing you all there as we prepare
 • for the monitoring season!
 •

The History and Opening of the Satellite Water Quality Laboratory at Franklin Pierce College

by Michele Hood, FPC

The opening of the Satellite Water Quality Laboratory at Franklin Pierce College (SWQL FPC) in June of 2000 was the realization of a project many years in the works. While it had long been held that a water quality lab located in this portion of the state was warranted by the tremendous volunteer participation in lake monitoring in southwestern New Hampshire, the project proved to be too great an undertaking for the times.

In the spring of 1998, Paul M. Kotila, Ph.D., Division Chair Natural Sciences, Franklin Pierce College, approached me to ask if I would be interested in conducting a feasibility study concerning the establishment of a water quality lab here at Franklin Pierce College. While I have a general background in the field of biology, much of my professional experience has been in medicine and education. It had long been a desire of mine to become better versed in the realm of environmental applications of science, and so 'the game was afoot.' It became my task to learn all I could about water monitoring and coordinating a

water quality lab.

Many of you who are reading this now will, I hope, recognize yourselves when I say that the tremendous dedication and support of many individuals made this lab possible. You are all to be commended for your willingness to share from your own experiences, both professional and volunteer, as well as for your patience in letting this lab take root and grow. These gifts have not gone unnoticed, and I hope you will feel rewarded by a more continuous efficiency in this season's work. We were also fortunate in receiving a generous startup grant from NH DES. Again, without this assistance this lab would not have been possible. The Local Water Protection grant enabled us to hire our first season staff and to purchase many essential supplies.

So, what did we accomplish during our first sampling season? The SWQL FPC served 19 separate lakes and conducted more than 400 analyses. As many of you know, the analysis of total phosphorus was problematic well into

August. Once the procedure for measuring total phosphorus was in working order, a statistical analysis of duplicate sample sets for all parameters showed that there was no significant difference in data sets produced in the DES labs and those produced in

the FPC lab.

As for the sampling season of 2001, you will notice some changes. There will be a new lab coordinator and a new student intern. Jonathan Curina will graduate this May with a degree in Environmental Science. Jennifer Sackett will work in a veterinarian's office in preparation for her application to veterinary college. While I will not remain in the forefront, I will remain accessible to those working in the lab to ensure that the lab has the support necessary to succeed.

In the future, we look forward to opening our doors to volunteers testing rivers in the southwestern portion of New Hampshire. We are in close contact with Beth Malcolm, Coordinator for NHDES VRAP, to ensure our readiness to participate in this important aspect of volunteer water stewardship. For the time being, our contact numbers remain the same. Those of you in our region will receive a mailing in late April or early May introducing the new lab coordinator and supplying information about lab hours and scheduling procedures. Please save the information below. Any changes will be noted in our spring mailing. ♦



Jonathan Curina and Jennifer Sackett of SWQL FPC.

Contact:

Michele Hood, Lab Coordinator:
899-4384

Kelley Wickman, Administrative
Assistant Natural Sciences:
899-4250

Mailing Address:
SWQL FPC

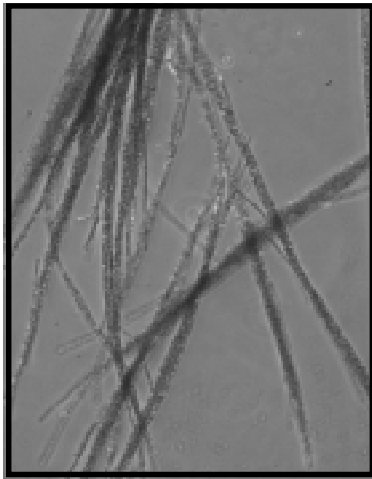
Natural Sciences
Franklin Pierce College
PO Box 60, College Road
Rindge, NH 03461

Frequently Asked Questions: ALGAE!

by Amy P. Smagula, Exotic Species Coordinator

Q. What is the bluish paint-like substance that I can sometimes see floating on the surface of the water? Is someone dumping blue paint in the lake?

A. This is certainly a frequently asked question late in the summer. Blue-green algae can often form that 'paint-like' appearance on the lake if they are in high enough numbers. Looking at it closely, the algae can look like paint chips or small 'sweater fuzz'



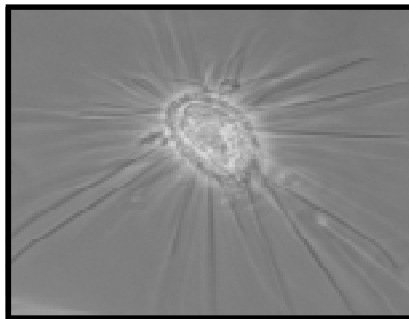
Aphanizomenon

floating in the water. These blooms can be found in patchy areas in the lake, or they can cover large areas in the shallows. The yellowish dust-like substance along the shores in early summer is likely pine pollen.

Q. What causes the fishy smell to the water?

A. If you notice a fishy smell and are not having a fish kill, then algae may be the cause. A number of golden-brown algae and some diatoms can cause water to

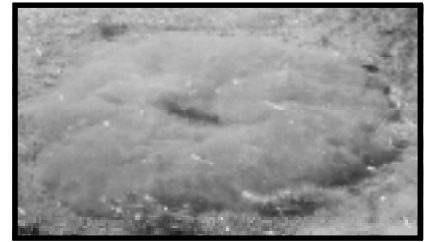
have strange smells, including fishy smells, cucumber smells, geranium smells, and others. When some algae multiply to large populations they can cause the water to give off these odors. If you notice these odors you may want to look at the water to determine if there is a cloudy appearance or a strange color to the water, further supporting a potential algal bloom.



Mallomonas

Q. My lake has bright green 'clumps' of algae in the summer. They are large green masses with air bubbles that float them to the top of the water. When I try to pick it up it just slips through my fingers. What is it?

A. These green masses of algae are actually an accumulation of several separate strands, or filaments, of algae that tend to stick together because of the mucilage sheath they produce. Oftentimes, these are green filamentous algae. When they are all in a mass together it is difficult to tell them apart. They need to be examined under a microscope to determine what they are. These algae can be present as single filaments in the water



Mougeotia, Spirogyra, and Zygnema mix.

column, where they are less noticeable. It is only when they form the large bright green masses that they draw attention. These are not harmful, and will often either break apart on a windy day or they will slowly decay into the lake sediments.

Q. Are algae a health hazard?

A. Most algae are not a health concern. There are some species of algae that can release toxins to the water. Some of the blue-green algae can release microcystin, a neurotoxin that can be hazardous to humans and animals if ingested (swimming in it is okay!). The University of New Hampshire is currently conducting research to determine the levels of microcystin in New

Q. What can be done to get rid of an algae bloom?

A. In many cases algae will quickly go away on their own. Blooms for the most part do not last long unless the waterbody has pronounced problems that lead to consecutive blooms of algae.

The Sampler is published by



Robert W. Varney
Commissioner

George Dana Bisbee
Assistant Commissioner

Harry T. Stewart, P.E.
Director, Water Division

Paul Currier
Administrator,
Watershed Management Bureau

Editor
Alicia C. Carlson

Watershed Management Bureau
New Hampshire Volunteer Lake
Assessment Program
PO Box 95
Concord, New Hampshire 03302-0095
(603) 271-2963

Bob Estabrook
Chief Aquatic Biologist,
Biology Section

Jody Connor
Limnology Center Director

Andrea Green
Volunteer Lake Assessment
Program, Coordinator

*The Sampler is printed
on recycled paper*

New Hampshire Department of Environmental Services
Water Division, Biology Section
P.O. Box 95, 6 Hazen Drive
Concord, New Hampshire 03302-0095

8522